

Fig. 1, A, represents the ruler seen by the right eye; B, that by the left; the outline of the extremity being faintly visible; the central part as far as C is transparent or invisible, while the distant object appears at D.

The ruler may now be passed further to the right, when the extremity at B will become visible again; showing that the power of becoming insensible to light, under these circumstances, is possessed only by the yellow spot of Scemmering, and not by the retina at large. It is curious to watch the play of sensibility; sometimes the transparency expanding widely and in a moment contracting to a mere point.

The use of all this is evident. When two objects are presented (a very frequent occurrence), one in the axis of each eye, the mind is not perplexed by the blending of the two objects, but contemplates the one while the other is withdrawn. This may be further illustrated by Wheatstone's *Stereoscope*. Place before the glasses a printed page on which two pencil marks have been drawn vertically about two inches apart. Let the lines be thrown into one by the action of the eyes, and fix the attention on any word the lines appear to run through. At first, perhaps, there will be a blending of letters, so that no word can be made out, both foramina being closed and sensitive; presently a word will be distinct, and either be retained or alternate with a word through which the other pencil mark passes. We may infer that this is owing in the latter case to the alternate action of the foramina, and not to the alternate action of the eyes, for the vertical pencil marks remain blended.

I have made other experiments than these on this subject, but as they are more difficult, and all result in proving that the central parts of the retina have an action independent of the retina at large, and as those already given are sufficiently conclusive, I shall detail no more.

---

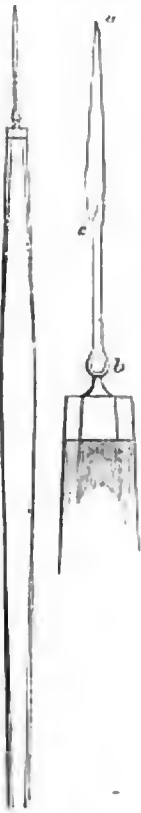
ART. X.—*Knife-Needle for the Operation for Cataract by Solution or Absorption.* By ISAAC HAYS, M.D.

THE operation for the removal of cataract by solution or absorption, has been deemed, by many surgeons, entirely inapplicable to hard cataracts, mainly in consequence of the difficulty of dividing such a lens by the needle ordinarily used for the purpose. The common straight needle cannot be made to cut well, beyond a short distance from the point, without being so thin as to endanger its breaking; and it is not possible to cut with a curved one. I have entertained the belief for several years, as is well known to my friends who are interested in the subject, that a needle better adapted for the purpose might be made something after the fashion of an iris knife, and more than three years since, I had such a one constructed by Mr.

Schmidt. This instrument was described and figured in my last edition of Mr. Lawrence's Treatise, p. 726.

The instrument, not having been made of the exact form I desired, though *described* as having a *very acute point*, is not so represented in the cut. Not being satisfied with the instruments made for me in Philadelphia, I sent a model to Messrs. Phillip & Wicker, surgeon instrument makers in London, with directions as to the improvement I desired in its form, and an order to make me some of them. The instruments which they sent to me were made with the point sufficiently acute, but the back was straight to the point, and the cutting edge was too long, the makers having followed the model of the ordinary iris knife too closely.

Fig. 1. Fig. 2.



A model was afterwards sent to M. Luer, of Paris, with an order for some of his make. These, on their arrival, I found not sufficiently slender, and the point was not sufficiently acute.

I have since had them made of different shapes, and finally Mr. Kolbe, of this city, formerly a workman of Mr. Luer, in Paris, has succeeded, under my directions, in making me one which has given me entire satisfaction, and is represented of its natural size in the accompanying cut, Fig. 1.

This instrument, from the point to the bead near the handle (*a* to *b*, see Fig. 2), is six-tenths of an inch, its cutting edge (*a* to *c*) is nearly four-tenths of an inch. The back is straight to near the point, where it is truncated, so as to make the point stronger, but at the same time leaving it very acute; and the edge of this truncated portion of the back is made to cut. The remainder of the back is simply rounded off. The cutting edge is perfectly straight, and is made to cut up to the part where the instrument becomes round *c*. This portion requires to be carefully constructed, so that as the instrument enters the eye it shall fill up the incision, and thus prevent the escape of the aqueous humour. In the diagram (Fig. 2) the proportions of the blade are not very accurately represented, the rounded part being rather too slender, and the handle should be octagonal, with equal sides, and of the same thickness its whole length.

We have now used the knife-needle in a sufficient number of cases to be convinced of its superiority over any of the ordinary cataract needles; and of the different forms of the former which we have tried, the one represented in the accompanying drawing is, we are satisfied, the best; and we confidently recommend it as such to ophthalmic surgeons.